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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/576,513

04/20/2006

Juergen Fortin

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08/18/2010

DYKEMA GOSSETT PLLC  
FRANKLIN SQUARE, THIRD FLOOR WEST  
1300 I STREET, NW  
WASHINGTON, DC 20005

EXAMINER

JANG, CHRISTIAN YONGKYUN

ART UNIT

PAPER NUMBER

3735

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/576,513	<b>Applicant(s)</b> FORTIN ET AL.	
	<b>Examiner</b> CHRISTIAN JANG	<b>Art Unit</b> 3735	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period **will** apply and **will** expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply **will**, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17-35 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/14/06</u> . | 6) <input type="checkbox"/> Other: ____.  |

**DETAILED ACTION**

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Information Disclosure Statement***

2. IDS submitted on November 14<sup>th</sup>, 2006 has been reviewed.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 24 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claim 24 recites the limitation "control loops three to eight" in line 3. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 17-20, 22, 24-28, 31, and 33-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Wesseling (USP #4,510,940).

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8. As to claims 17 and 25, Wesseling teaches a method and corresponding device for controlling the pressure in a cuff of a BP measuring apparatus (1) with a plethysmographic sensor device (4) comprising the following steps of an inner control loop wherein the BP is used as a control variable and is fed into a difference amplifier as a first input signal (claim 18 - a parallel PID circuit responsive to pressure in the pressure cuff and a state switch connected to the pressure valve and fed into a differential amplifier), a second outer control loop wherein the PG signal, with its mean value suppressed, is fed into a controller and is added to a set point signal, generating a target signal SW and fed into a difference amplifier as a second input signal (claim 18 - plethysmograph with a control loop with a differential amplifier and memory circuit in the feedback circuit, the differential amplifier inherently suppressing the mean value) and the output signal is used to control at least one valve which in turn regulates the pressure in the cuff (claim 18 - the memory circuit adjusts the servo-reference level and the state switch is connected to the pressure valve; claim 1 - the adjustment of the servo reference level adjusts the valve so that the cuff pressure corresponds with the momentary arterial pressure).

9. As to claim 18, Wesseling teaches the use of a mean value PG to be used as an input signal of the second control loop (col. 11 line 58 to col. 12 line 2).

10. As to claim 19, Wesseling teaches amplification parameters P, I, and/or D is optimized and continuously corrected as inputs to the controller (PID circuit 8).

11. As to claim 20, Wesseling teaches a control loop wherein set point signal SP is readjusted depending on the integral of the PG (col. 7 lines 56 to col. 8 line 12).

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12. As to claim 22, Wesseling teaches a control loop wherein SP is readjusted in dependence of the pulse waveform of the BP (col. 6 lines 8-28).

13. As to claim 24, Wesseling teaches a control loop wherein BP is fed to a systole/diastole detector whose output is used as control variable (col. 5 lines 21-49).

14. As to claim 26, Wesseling teaches a difference amplifier (7) and a summation unit (col. 7 lines 7-17).

15. As to claims 27 and 28, Wesseling teaches the computing of an initial value for the mean value of PG and set point signal SP (col. 1 lines 5-29 - initial adjustment of servo-reference level sets both the mean value of PG and set point signal SP as both are dependent upon them).

16. As to claim 31, Wesseling teaches a difference amplifier is designed as a comparator which actuates the at least one digital switching valve for pressure regulation in the cuff (col. 12 lines 24-40).

17. As to claim 33, Wesseling teaches that the light source is furnished with circuitry for controlling the voltage or current (col. 4 lines 6-15).

18. As to claim 34, Wesseling teaches a finger cuff (Fig. 5).

19. As to claim 35, Wesseling teaches a PID-controller (8).

***Claim Rejections - 35 USC § 103***

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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21. Claims 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wesseling (USP #4,510,940) in view of Korhonen et al. (USP #7,367,949).

22. As to claim 21, Wesseling teaches a control loop wherein the SP is readjusted on the basis derived quantities (col. 5 lines 25-40), but fails to teach the use of a fuzzy logic approach. Korhonen, in a method for monitoring the condition of a patient using inputs such as plethysmographic or blood pressure measurements teaches that the mathematical index can utilize fuzzy logic in its mathematical combinations (col. 13 lines 45-59). As Wesseling teaches the use of various mathematical combinations, the use of fuzzy logic would enable a form of multi-valued logic approach that is well known and utilized within the art of endeavor and across multiple arts. As such, it would have been obvious to one of ordinary skill in the art to modify the control loop of Wesseling to utilize fuzzy logic to adjust the set point signal by using a well established method that allows for predictable results and would have been obvious to try.

23. As to claim 23, Korhonen teaches the use of artificial neural networks (col. 13 lines 45-59). As such, it would have been obvious to one of ordinary skill in the art to modify the control loop of Wesseling to utilize fuzzy logic to adjust the set point signal by using a well established method that allows for predictable results and would have been obvious to try.

24. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wesseling (USP #4,510,940) in view of Hatschek (USP #4,459,991).

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25. As to claim 29, Wesseling does not teach that the difference amplifier connects to an inlet valve via a non-inverting amplifier unit and an outlet valve via an inverting amplifying unit. However, Hatschek teaches a cuff where the differential amplifier (101) utilizes inverting and non-inverting inputs of the operator (107 and 109) to open or close valve (37). As such it would have been obvious to modify the device of Wesseling to utilize a valve control setup that is well established as it would be obvious to try.

26. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wesseling (USP #4,510,940) in view of Lichowsky (USP #3,905,354).

27. As to claim 30, Wesseling does not teach proportional valves. However, Lichowsky teaches proportional valves to be used in a blood pressure cuff (14, 17; claim 4). As such it would have been obvious to modify the device of Wesseling to utilize a valving setup that is well established as it would be obvious to try.

28. Claim 32 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wesseling (USP #4,510,940) in view of Asada et al. (US 2002/0169381).

29. As to claim 32, Wesseling does not teach a device for elimination of stray or ambient light. Asada, in a plethysmograph used on a finger, teaches the use of components which serve as a shield to prevent ambient light from reaching the detector ([0022]). Since ambient light would add undesirable signal noise, it would have been obvious to one of ordinary skill in the art modify the device of Wesseling to utilize

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components which would act as a shield to eliminate stray or ambient light from reaching the plethysmograph.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTIAN JANG whose telephone number is (571)270-3820. The examiner can normally be reached on Mon-Thurs (10-9:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor can be reached on 571-272-4730. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Charles A. Marmor, II/  
Supervisory Patent Examiner  
Art Unit 3735

CJ  
/C. J./  
Examiner, Art Unit 3735  
8/10/10